

REMARKS

Regarding the Amendments

Claims 2, 3, 16 and 42 have been amended as set forth in the attached "Version With Markings To Show Changes Made". As amended, the claims are supported by the specification and the original claims. Applicants submit that the amendments to the claims are for clarity and should not be construed as amendments affecting patentability under Festo Corp. v. Shoketsu Kinzoku Kogyo Kabushiki Co., 234 F.3d 558, 56 USPQ2d 1865 (Fed. Cir. 2000) (en banc). Claims 46-50 have been cancelled without prejudice. Thus, upon entry of the amendments, claims 2-5, 16-19, 40 and 42-45 will be pending.

Additionally, the Examiner's attention is drawn to the amendment to the specification wherein a paragraph regarding government support has been added. This paragraph was submitted with the Response to the Final Office Action mailed August 28, 2002, but because that response has not been entered, the paragraph is being resubmitted.

Rejection Under 35 U.S.C. § 112, First Paragraph

Applicants respectfully traverse the rejection of claims 42-46 under 35 U.S.C. § 112, first paragraph, for containing subject matter allegedly not described in the Specification in such a way as to reasonably convey to one skilled in the relevant art that the inventors had possession of the invention at the time of filing of the Application. In particular, it is alleged in Paper No. 17 that there is insufficient support for claims 42-46, directed towards a "hybrid" zinc finger protein that binds to a target nucleic acid, the hybrid zinc finger comprising zinc fingers from a first protein linked to zinc fingers from a second protein. The advisory action alleges that the specification and prior art do not provide sufficient basis "to enable one of skill in the art to envision a sufficient number of specific embodiments sufficient to describe the entire, broadly claimed genus of such proteins." Applicants respectfully disagree, and state that there is sufficient support in the specification, such that one of skill in the art would have been able to practice the invention at the time of filing.

As previously stated in Applicants' last filed response, Applicants do not dispute that the claims encompass a large genus of zinc finger modules obtained from any zinc finger protein. However, it is set forth that the teachings in the specification and in the art provide detailed descriptions of those zinc finger modules. The specification contains numerous zinc finger proteins from which to select zinc finger modules for generating a hybrid zinc finger protein as claimed in the present invention. Further, Applicants submit that the specification clearly teaches one of skill in the art how to screen for a zinc finger protein encompassed by claim 42 and claims dependent thereon. For example, the specification teaches that variant/hybrid zinc finger proteins of the invention are useful for suppressing or inducing gene expression, for example (see page 12, lines 8-17; page 44, lines 11-17; pages 46, line 11 through page 51 and the Examples section) and one of skill in the art can use standard gene expression assays to determine whether a particular variant/hybrid zinc finger protein exhibits an effect on expression of a particular gene of interest.

The Examiner has responded to the above points by stating that "[a]rguments directed towards screening methods and standard expression techniques are more suited to an enablement rejection and are *not relevant* with regard to description of the claimed invention." (Emphasis added.) Applicants respectfully disagree. The above arguments have been made in order to show both the structure and function of the claimed hybrid. It is apparent from the specification and claims 42-45 that the structure of the hybrid is a zinc finger protein that comprises zinc fingers from a first protein linked to a zinc finger from a second protein. Specifically, it was noted in Applicants' response filed February 28, 2002, that the specification at page 10, lines 15-25 of the specification, states "[a] variant may be a hybrid which contains zinc finger domain(s) from one protein linked to zinc finger domain(s) of a second protein, for example." Thus, all of the teaching in the specification relating to "variant" zinc finger proteins also relates to "hybrid" proteins. Additionally, the amino acid sequences of each zinc finger must possess two cysteines and two histidines and both cysteines must be amino proximal to both histidines. The showing of the teachings regarding the screening methods and standard expression techniques was made to show methods of identifying hybrids with the claimed function. It is claimed that the hybrid

binds a protein different from the protein bound by either of the individual proteins of which the hybrid is comprised. Gene expression will be affected by such binding and so screening methods and standard expression techniques will assist in identification of a hybrid with the above structural characteristics and such a functional characteristic. Therefore, it is Applicants' position that screening methods and standard expression techniques are relevant to the present written description requirement.

The Examiner alleges that without such detailed information as how the domains are linked, what amino acids are used in such a linkage, what amino acid residues are acceptable for use in linking the domains, what the critical amino acids within the domains are, what the percentage of possible zinc-finger proteins in nature from any source that have actually been described is, and what nucleic acid sequence the hybrid zinc finger protein will bind that the specification does not provide an adequate written description of the subject matter of claims 42-46. Applicants respectfully submit that as the specification contains sufficient information to allow one of skill in the art to identify a hybrid of the invention with structural and functional characteristics as set forth above, withdrawal of the rejection of claims 42-46 under 35 U.S.C. §112, first paragraph is respectfully requested.

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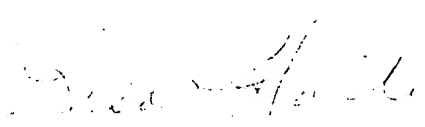
PATENT
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CONCLUSION

In summary, for the reasons set forth herein, Applicants maintain that the pending claims clearly and patentably define the invention, respectfully request that the Examiner reconsider the various grounds set forth in the Office Action, and respectfully request the allowance of the claims which are now pending. If the Examiner would like to discuss any of the issues raised in the Office Action, Applicant's representative can be reached at (858) 677-1456. Please charge any additional fees, or make any credits, to Deposit Account No. 50-1355.

Respectfully submitted,

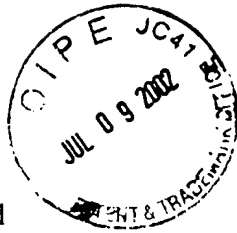
Date: June 28, 2002



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VERSION WITH MARKINGS TO SHOW CHANGES MADE

2. (Amended) An isolated zinc finger-nucleotide binding polypeptide variant comprising at least two zinc finger modules wherein the amino acid sequence of at least one zinc finger module of said variant has at least one amino acid sequence modification, wherein said variant binds a polynucleotide sequence different from a sequence bound by a zinc finger-nucleotide binding polypeptide not having amino acid sequence modification and wherein the amino acid sequence of each zinc finger molecule that binds a polynucleotide sequence different from a sequence bound by a zinc finger-nucleotide binding polypeptide not having amino acid sequence modification comprises two cysteines and two histidines, whereby both cysteines are amino proximal to both histidines.
3. (Amended) The variant of claim 2, wherein the [which is a] zinc finger-nucleotide binding polypeptide is a variant of a protein selected from [the group consisting of] Zif268 [and] or TFIIIA.
16. (Amended) The isolated zinc finger-nucleotide binding polypeptide variant of claim 2, comprising at least three zinc finger modules wherein at least one module binds to a cellular nucleotide sequence and wherein said variant binds a polynucleotide sequence different from a sequence bound by a zinc finger-nucleotide binding polypeptide not having amino acid sequence modification.
42. (Amended) A hybrid zinc finger protein that binds to a target nucleic acid, the hybrid zinc finger comprising zinc fingers from a first protein linked to zinc fingers from a second protein different from the first protein, wherein the hybrid zinc finger binds a polynucleotide sequence different from a sequence bound by individual modules of the first protein and the second protein and wherein the amino acid sequence

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of each zinc finger protein that binds a target nucleic acid comprises two cysteines and two histidines, whereby both cysteines are amino proximal to both histidines.